

# ABSTRACT

An electromagnetic sensor capable of maintaining its accuracy through temperature cycling is provided. The sensor element material of an electromagnetic sensor is covered by an encapsulant having substantially similar thermal expansion values as the sensor element material. By matching the thermal expansion values of the components, changes in component orientation may be minimized during temperature cycling thus reducing the need for recalibration of the sensor assembly. In one embodiment the encapsulant is doped with a ceramic material or glass microspheres to achieve a thermal expansion coefficient similar to the thermal expansion coefficient of the copper sensor element material.